920476-904739

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

In the application of	:	John E. Hudson
Serial No.	:	09/668,557
Filed	:	October 16, 2000
For	:	Wireless Communication System and Method Therefor
Examiner	:	James D. Ewart
Art Unit	:	2683
Customer number	:	23644

BRIEF ON APPEAL RESPONSIVE TO ORDER TRANSMITTING JANUARY 17, 2008

Honorable Director of Patents and Trademarks
PO Box 1450
Alexandria, VA 22313-1450

Dear Sir,

This Brief is being filed in view of the Order transmitted January 17, 2008 regarding this application and requesting that a Supplemental Brief be filed with respect to Claim 15 (and dependent Claim 16), and that the Supplemental Brief be self-contained. This Brief is therefore being submitted, following that Order.

The appeal fee and brief fee have already been paid, and it is believed that no additional fees are necessary. However, should any additional fee be required, such may be deducted from Deposit Account No. 12-0913 after telephone confirmation by the undersigned.

(i) **Real Party in Interest**

This application is assigned to Nortel Networks Limited. The assignment is recorded at 011464/0460.

(ii) **Related Appeals and Interferences**

There are no related appeal or interferences. Of course, this additional Brief is being filed in view of the decision in which the Examiner was reversed with respect to all pending claims except for Claims 15 and 16.

(iii) **Status of Claims**

This application was filed with Claims 1-48. The claims have not been amended during the prosecution procedure and consequently the claims as currently pending are as filed and are the claims on appeal. The Examiner has been reversed with respect to all but Claims 15 and 16 in the decision transmitted January 17, 2008. The claims as currently appealed are set forth the Claims Appendix.

(iv) **Status of Amendments**

A paper entitled "Response to Office Action Mailed February 11th, 2004" was filed April 07, 2004 following the first final Office Action, and was entered by the Examiner. No amendment of the specification or claims was made.

An Advisory Action maintaining the Examiner's rejection of claims 1 to 48 as filed was mailed April 20, 2004. It is this rejection of the claims that was appealed and discussed in the Brief mailed July 12, 2004 and received July 20, 2004.

The Examiner then re-opened prosecution and issued the final Office Action of December 7, 2004, substituting Rahman U.S. Patent No. 6,078,817 as the secondary reference rather than Bi U.S. Patent Publication No. 2002/0036999. The applicant has elected to request reinstatement of the appeal, and it is the continuing rejection of claims 1 to 48 that is again appealed, with the Examiner having been reversed with respect to Claims 1-14 and 17-48 in the decision transmitted January 17, 2008.

(iv) **Summary of the Claimed Subject Matter**

The present invention is directed to enhancing the wireless link bandwidth in a cellular wireless communications system in which data traffic is communicated between a remote terminal (132), such as a web content server, for example, in an external network, via a wireless communications system mobile switching centre (MSC) (128) and a plurality of base stations to a wireless communications system terminal (200) having a plurality of modems [page 4, lines 9 and 10, page 21, lines 13, 16 to 18 and 30 to 33] coupled to an antenna arrangement [page 15, lines 1 to 3 and lines 16 to 17]. This is achieved by establishing a plurality of simultaneous but separate respective communications links between the terminal (200) and the plurality of base stations. Each of the plurality of simultaneous communications links carries some of the data traffic being communicated from the MSC via the plurality of base stations to the terminal, where the data traffic content of each such link comprises a different (i.e. non-identical) part of said data traffic.

The present invention thereby enables the bandwidth to the wireless terminal (200) to be considerably increased above that which could be provided on a communications link between the wireless terminal and a single base station.

Claims 15 and 16

The invention of Claims 15 and 16 provides a communications terminal comprising a plurality of modems [page 4, lines 9 and 10, page 21, lines 13, 16 to 18 and 30 to 33] coupled to an antenna arrangement [page 15, lines 1 to 3 and lines 16 to 17], the antenna arrangement supporting a plurality of simultaneous communications links [figures 2 and 3, page 15, lines 1 to 14], a number of the plurality of simultaneous communications links bearing content data [figures 5 and 6, page 17, line 34 to page 18, line 15], wherein the content data born by each of the number of the plurality of simultaneous communications links are non-identical [figure 6, page 3, line 35, page 5, line 27, page 18, line 30 to page 19, line 27].

(vi) **Grounds of Rejection to be Reviewed on Appeal**

The following issues are presented in view of the Order of January 17, 2008:

1. The rejection of claim 15 under 35 U.S.C. 103(a) as being unpatentable over Kanerva et al in view of Willars et al (US 6449290); and

2. The rejection of claim 16 under 35 U.S.C. §103(a) as being unpatentable under Kanerva et al and Willars et al further in view of Smith et al.

(vii) **Argument**

Referring to issue 1 above, Kanerva teaches a mobile cellular wireless communications system in which a mobile terminal establishes a single (one to one) communications link with a base station in whose cell it is located. The single communications link comprises a multiplicity of parallel channels, e.g. time-slots or carriers, as a means of increasing the bandwidth between the terminal and the single base station. The parallel channels/sub-channels are not a plurality of communications links as claimed or as would be understood by one skilled in the art. Thus, Kanerva is directed to a scheme of how to divide the single communications link between the mobile terminal and the base station into a multiplicity of channels in order to increase the portion of bandwidth available on the single communications link to the terminal. As confirmed in Kanerva, the multiplicity of parallel channels (multichannel data link) is substantially similar to a single channel link (see Kanerva, column 8, lines 25 to 27). The link bandwidth cannot therefore be increased above that sustainable by the single communications link between the mobile terminal and the single base station. There is no suggestion in Kanerva of establishing further (i.e. a plurality of) communication links simultaneously between the mobile terminal and the same or a plurality of other base stations in order to further enhance the wireless link bandwidth offered to the terminal. Furthermore, Kanerva offers no teaching or suggestion concerning a mobile terminal having plurality of modems coupled to an antenna arrangement to establish a plurality of simultaneous communications links.

Willars teaches the provision of a plurality of modems in a base station, not a terminal as in the present invention. However, even if one considers the term "terminal" to read onto base station, Willars is not directed to the issue of enhancing the wireless bandwidth to a terminal through a plurality of simultaneous communications links between the terminal and a plurality of base stations. Instead, that part of the disclosure of Willars relied on by the Examiner addresses a soft handoff technique in which a new base station modem is assigned to a terminal

while the old base station modem continues to serve the call (col 2, lines 9 to 14). Once good communications are established with the terminal the old base station modem discontinues serving the call (col 2, lines 19 to 23). Thus, Willars is concerned with ensuring smooth handoff from one communication link to another communication link, the two communication links persisting simultaneously for only as long as it takes to ensure good communication is established between the new modem at the base station and the terminal. One skilled in the art would inherently understand that this period of persistence should be reduced as much as possible because, while the two links are persisting, this represents a very inefficient use of system bandwidth resources. Thus, Willars teaches that two modems are simultaneously operated at the base station only for the purpose of smooth handoff and that the 'old' one of the modems should be ceased to operate as soon as possible to conserve system bandwidth, i.e. returning the terminal to a single communication link with the base station. Willars therefore generally teaches against establishing a plurality of simultaneous communication links for the purpose of enabling a terminal to convey data content on said plurality of communications links. Consequently, one skilled in the art would not seriously contemplate modifying the system of Kanerva to add multiple modems, particularly bearing in mind the cost that the addition of such modems would represent to a terminal device should as a mobile handset. Furthermore, given that Kanerva already provides an enhanced bandwidth to the terminal by providing the terminal with many parallel channels/sub-channels on the single communication link, it is unclear what motivation one skilled in the art would have to modify the system of Kanerva by that taught by Willars bearing in mind the resulting increased cost of the handsets due to the additions of multiple modems and indeed the changes that would be required to the antenna arrangement.

Kanerva and Willars address very different technical issues. A skilled person would not be motivated by the teaching of the existence of a plurality of modems in the base stations of Willars to modify the terminals in Kanerva to include multiple

modems coupled to the antenna arrangement for establishing a plurality of simultaneous communications links between the terminal and a plurality of base stations (page 15, lines 3 to 11).

Consequently, the rejection of claim 15 should be reversed.

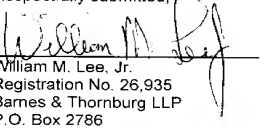
Referring to issue 2, neither of Kanerva or Willars teaches or suggests providing a multiple beam antenna arranged to direct an antenna beam to one of a plurality of base stations for providing a near-isolated communications link to the one of the plurality of base stations.

Consequently, the rejection of claim 16 should also be reversed.

The applicant appreciates the January 17, 2008 Decision reversing the rejections of Claims 1-14 and 17-48 and urges reversal of the Examiner's rejection of claims 15 and 16 which are believed to define an invention which is both novel and non-obvious having regard to the prior art references relied on by the Examiner.

February 11, 2008

Respectfully submitted,



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CLAIMS APPENDIX

1. A wireless communications system comprising a terminal capable of communicating with a plurality of base stations using a respective plurality of simultaneous communications links, a number of the plurality of simultaneous communications links bearing content data, wherein the content data borne by each of the number of the plurality of simultaneous communications links are non-identical.

2. A system as claimed in Claim 1, wherein at least one of the plurality of base stations supports a plurality of sectors.

3. A system as claimed in Claim 2, wherein the at least one of the plurality of base stations comprises a sectored antenna.

4. A system as claimed in Claim 1, wherein the terminal comprises an antenna arrangement arranged to direct a sector or beam to one of the plurality of base stations for providing a near-isolated communications link to the one of the plurality of base stations.

5. A system as claimed in Claim 1, wherein at least two of the communications links are completely isolated from each other.

6. A system as claimed in Claim 1, further comprising a routing entity capable of dividing the content data between the number of the plurality of communications links so that a proportion of the content data is communicated over a communications link of the number of the plurality of communications links and another proportion of the data is simultaneously communicated over another communications link of the number of the plurality of communications links.

7. A system as claimed in Claim 6, wherein a source of the content data comprises the routing entity.

8. A system as claimed in Claim 7, wherein the routing entity is arranged to control routing of virtual circuits so as to cause the proportion of the data to be communicated over the communications link of the number of the plurality of the communications links.

9. A system as claimed in Claim 6, further comprising a controller unit, the controller unit comprising the routing entity.

10. A system as claimed in Claim 7, wherein the routing entity is arranged to edit headers of data units to contain an address corresponding to the communications link of the number of the plurality of the communications links.

11. A system as claimed in Claim 9, wherein the routing entity is arranged to edit headers of data units to contain an address corresponding to the communications link of the number of the plurality of the communications links.

12. A system as claimed in Claim 6, wherein the routing entity is arranged to edit path identifiers of data units so that the proportion of the data is communicated over the communications link of the number of the plurality of communications links.

13. A system as claimed in Claim 1, further comprising a controller unit, the controller unit being arranged to select the number of the plurality of communications links from the plurality of communications links in response to respective signal quality criteria of the plurality of communications links.

14. A system as claimed in Claim 13, wherein the controller is arranged to select the number of the plurality of communications links from the plurality of communications links in response to respective bandwidth availability of the plurality of communications links.

15. A communications terminal comprising a plurality of modems coupled to an antenna arrangement, the antenna arrangement supporting a plurality of simultaneous communications links, a number of the plurality of simultaneous

communications links bearing content data, wherein the content data born by each of the number of the plurality of simultaneous communications links are non-identical.

16. A terminal as claimed in Claim 15, wherein the terminal comprises a sectored multiple beam antenna arranged to direct an antenna beam to one of the plurality of base stations for providing a near-isolated communications link to the one of the plurality of base stations.

17. A method of communicating data between a plurality of base stations and a terminal, the method comprising the step of:

establishing a plurality of respective simultaneous communications links between the plurality of base stations and the terminal, a number of the plurality of simultaneous communications links bearing content data, wherein the content data born by each of the number of the plurality of simultaneous communications links are non-identical.

18. A method as claimed in Claim 17, wherein the terminal comprises an antenna arrangement, and the method further comprises the step of:

directing a sector or a beam to one of the plurality of base stations for providing a near-isolated communications link to the one of the plurality of base stations.

19. A method as claimed in Claim 17, further comprising the step of:

communicating the content data via the number of the plurality of communications links, a proportion of the data being communicated over a communications link of the number of the plurality of communications links and another proportion of the data being simultaneously communicated over another communications link of the number of the plurality of communications links.

20. A method as claimed in Claim 19, wherein a source of the content data controls routing of virtual circuits so as to cause the proportion of the content data to be communicated over the communications link of the number of the plurality of the communications links.

21. A method as claimed in Claim 19, further comprising the step of:

editing headers of data units to contain an address corresponding to the communications link of the number of the plurality of the communications links.

22. A method as claimed in Claim 19, further comprising the step of:

editing path identifiers of data units so that the proportion of the data is communicated over the communications link of the number of the plurality of communications links.

23. A method as claimed in Claim 17, further comprising the step of:

selecting the number of the plurality of communications links from the plurality of communications links in response to respective signal quality criteria of the plurality of communications links.

24. A method as claimed in Claim 23, further comprising the step of:

selecting the number of the plurality of communications links from the plurality of communications links in response to respective bandwidth availability of the plurality of communications links.

25. Computer executable software code stored on a computer readable medium, the code being for communicating data between a plurality of base stations and a terminal, the code comprising:

code to establish a plurality of simultaneous communications links between the plurality of base stations and the terminal, a number of the plurality of

simultaneous communications links bearing content data, wherein the content data born by each of the number of the plurality of simultaneous communications links is non-identical.

26. Computer executable software code as claimed in Claim 25, wherein the terminal comprises a sectored multiple beam antenna, and the code further comprises:

code to direct a sector or a beam to one of the plurality of base stations for providing a near-isolated communications link to the one of the plurality of base stations.

27. Computer executable software code as claimed in Claim 25, further comprising:

code to communicate the content data via the number of the plurality of communications links, a proportion of the data being communicated over a communications link of the number of the plurality of communications links and another proportion of the data being simultaneously communicated over another communications link of the number of the plurality of communications links.

28. Computer executable software code as claimed in Claim 27, further comprising code to enable a source of the content data controls routing of virtual circuits so as to cause the proportion of the content data to be communicated over the communications link of the number of the plurality of the communications links.

29. Computer executable software code as claimed in Claim 27, further comprising:

code to edit headers of data units to contain an address corresponding to the communications link of the number of the plurality of the communications links.

30. Computer executable software code as claimed in Claim 27, further comprising:

code to edit path identifiers of data units so that the proportion of the data is communicated over the communications link of the number of the plurality of communications links.

31. Computer executable software code as claimed in Claim 25, further comprising:

code to select the number of the plurality of communications links from the plurality of communications links in response to respective signal quality criteria of the plurality of communications links.

32. Computer executable software code as claimed in Claim 31, further comprising:

code to select the number of the plurality of communications links from the plurality of communications links in response to respective bandwidth availability of the plurality of communications links.

33. A programmed computer for communicating data between at least one base station and a terminal, comprising memory having at least one region for storing computer executable program code, and

a processor for executing the program code stored in memory, wherein the program code includes:

code to establish a plurality of simultaneous communications links between the plurality of base stations and the terminal, a number of the plurality of simultaneous communications links bearing content data, wherein the content data born by each of the number of the plurality of simultaneous communications links is non-identical.

34. A programmed computer as claimed in Claim 33, wherein the terminal comprises a sectored multiple beam antenna, and the program code further comprises:

code to direct a sector or a beam to one of the plurality of base stations for providing a near-isolated communications link to the one of the plurality of base stations.

35. A programmed computer as claimed in Claim 33, the program code further comprising:

code to communicate the content data via the number of the plurality of communications links, a proportion of the data being communicated over a communications link of the number of the plurality of communications links and another proportion of the data being simultaneously communicated over another communications link of the number of the plurality of communications links.

36. A programmed computer as claimed in Claim 35, the program code further comprising code to enable a source of the content data controls routing of virtual circuits so as to cause the proportion of the content data to be communicated over the communications link of the number of the plurality of the communications links.

37. A programmed computer as claimed in Claim 35, the program code further comprising:

code to edit headers of data units to contain an address corresponding to the communications link of the number of the plurality of the communications links.

38. A programmed computer as claimed in Claim 35, the program code further comprising:

code to edit path identifiers of data units so that the proportion of the data is communicated over the communications link of the number of the plurality of communications links.

39. A programmed computer as claimed in Claim 33, the program code further comprising:

code to select the number of the plurality of communications links from the plurality of communications links in response to respective signal quality criteria of the plurality of communications links.

40. A programmed computer as claimed in Claim 39, the program code further comprising:

code to select the number of the plurality of communications links from the plurality of communications links in response to respective bandwidth availability of the plurality of communications links.

41. A computer readable medium having computer executable software code stored thereon, the code being for communicating data between at least one base station and a terminal and comprising:

code to establish a plurality of simultaneous communications links between the plurality of base stations and the terminal, a number of the plurality of simultaneous communications links bearing content data, wherein the content data born by each of the number of the plurality of simultaneous communications links is non-identical.

42. A computer readable medium as claimed in Claim 41, wherein the terminal comprises a sectored multiple beam antenna, and the program code further comprises:

code to direct a sector or a beam to one of the plurality of base stations for providing a near-isolated communications link to the one of the plurality of base stations.

43. A computer readable medium as claimed in Claim 41, the program code further comprising:

code to communicate the content data via the number of the plurality of communications links, a proportion of the data being communicated over a communications link of the number of the plurality of communications links and another proportion of the data being simultaneously communicated over another communications link of the number of the plurality of communications links.

44. A computer readable medium as claimed in Claim 43, the program code further comprising code to enable a source of the content data controls routing of virtual circuits so as to cause the proportion of the content data to be communicated over the communications link of the number of the plurality of the communications links.

45. A computer readable medium as claimed in Claim 43, the program code further comprising:

code to edit headers of data units to contain an address corresponding to the communications link of the number of the plurality of the communications links.

46. A computer readable medium as claimed in Claim 43, the program code further comprising:

code to edit path identifiers of data units so that the proportion of the data is communicated over the communications link of the number of the plurality of communications links.

47. A computer readable medium as claimed in Claim 41, the program code further comprising:

code to select the number of the plurality of communications links from the plurality of communications links in response to respective signal quality criteria of the plurality of communications links.

48. A computer readable medium as claimed in Claim 47, the program code further comprising:

code to select the number of the plurality of communications links from the plurality of communications links in response to respective bandwidth availability of the plurality of communications links.

Evidence Appendix

None.

Related Proceedings Appendix

None